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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 522,609	03/10/2000	Shoichi Kuroha	64317/99	4319

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT PAPER NUMBER

2871

DATE MAILED: 12/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/522,609

Applicant(s)

SHOICHI KUROHA

Examiner

Tarifur R Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 15-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. Claims 7 and 15-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

Note: In page 3 of the restriction requirement mailed on 09/11/2002, the examiner inadvertently made a typographical error mentioning claim 5 as being related to species IA and claim 6 being related to Species IB. It should have actually read claim 6 being related to species IA and claim 7 being related to species IB. In the reply filed on 10/11/2002, applicant elected species IB claim 6. Accordingly, claim 6, is examined.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 3, 5 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Sonoda et al., (Sonoda), USPAT 6,433,852.

Sonoda discloses and shows in Fig. 2, an in-plane switching type liquid crystal display (col. 1, lines 5-11) comprising at least one spacer (SP2) which is positioned under a black matrix (BM) (applicant's opaque region) and at least one projection (SP1) which is formed under the opaque region (BM), and on the inner-most surface of the substrate (SUB2).

Accordingly, claims 1 and 3 are anticipated.

As to claim 5, Sonoda shows in Fig. 2 that the height of the projection (SP1) is shorter than the diameter of the spacer (SP2).

As to claim 13, Sonoda shows in Fig. 2, that the space between the two substrates (SUB1, SUB2) is filled with liquid crystal molecules (LC).

5. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Kishimoto et al., (Kishimoto), USPAT 6,072,557.

Kishimoto discloses and shows in Fig. 1A, a liquid crystal display comprising at least one spacer (18) which is positioned under a black matrix (14) (applicant's opaque region) and at least one projection (22) which is formed under the opaque region (14), and on the inner-most surface of the substrate (10).

Accordingly, claims 1 and 3 are anticipated.

As to claim 4, Kishimoto shows in Fig. 1 A that the height of the projection (22) is longer than approximately 1% the length of the diameter of the spacer (18).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claim 1-6 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazunari Matsunami (Kazunari), JP 08-179330 in view of Masanobu et al., (Masanobu), JP 11-174466.**

8. Kazunari discloses in the abstract and shows in Fig. 2, a liquid crystal display comprising at least one spacer (3) which is positioned under an opaque region (10).

Kazunari differs from the claimed invention because he does not explicitly disclose the projection being formed under the opaque region and on at least one of the inner-most surfaces of the first and second substrates.

Masanobu discloses a liquid crystal display wherein projections (201, 202) are formed under an opaque region (103) and on at least one of the inner- most surfaces of the substrates (Figs. 2 and 7). Masanobu also discloses that by attaching a protrusion to the pixel prevents the movement of a spacer and thus prevent damage to the orientation film (abstract).

Masanobu is evidence that ordinary workers in the art of liquid crystal would find

a reason, suggestion or motivation to form a projection under an opaque region on the inner-most surface of the substrate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of Kazunari such that form a projection under the opaque region and on one of the inner-most surfaces of the substrates, so that movement of the spacer is prevented and thus damage to the orientation film is prevented, as per the teachings of Masanobu.

Accordingly, claims 1, 3 and 12 would have been obvious.¹

As to claims 2 and 10, Masanobu shows in Fig. 2 that the projections (201, 202) are formed in a format of creating a wall around a transparent region so that the spacer can not enter the transparent region.

As to claims 5 and 11, Masanobu shows in Fig. 7 that the height of the projection is shorter than the diameter of the spacer.

As to claim 4, forming the projection such that the height of the projection is longer than approximately 1% the length of the diameter of the spacer is an obvious variation of forming a projection that has a height shorter than the diameter of the spacer and thus would have been obvious.

As to claim 6, Masanobu shows in Fig. 7 that the projection (201, 202) is formed under an alignment layer.

As to claim 8, Masanobu shows in Fig. 7 that one of the projection (201) is formed on the inner-most surface of the first substrate (101) faces another one of the projection (202) formed on the inner-most surface of the second substrate (11).

As to claim 9, Masanobu also shows in Fig. 7 that the height of each projection (201, 202) is equal.

As to claims 13 and 14, using the display device in an in-plane switching mode or in a vertical electric field mode are known in the art for several reasons such as to increase viewing angle characteristics and thus would have been obvious.

Conclusion

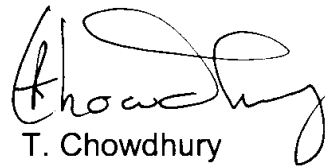
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 305-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7005 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

TRC
December 23, 2002


T. Chowdhury
Patent Examiner
Technology Center 2800